

Mountain States Health Alliance

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Introduction

Mountain States Health Alliance (MSHA) is a not-for-profit (501(c)3) health care system, comprised of 11 hospitals and numerous other health care facilities. It serves the people of Northeast Tennessee and Southwestern Virginia, people from cities, towns, and rural communities. In trying to improve the health of our community members, MSHA is reaching out to rural, community hospitals in the region and helping them to provide better services to their communities, reducing the time and expense required to travel the hour or more to a larger community with a larger hospital. MSHA will be the responsible organization in the proposed project.

Norton Community Hospital (NCH) is a 129 bed hospital located in Norton, VA, the county seat of Wise County, in Southwestern Virginia. NCH owns Dickenson Community Hospital (DCH), located in Clintwood, Virginia. DCH is a 25 bed, not-for-profit Critical Access Hospital. These hospitals are connected to each other using a Wide Area Network (WAN). When final approvals are obtained, these facilities will become members of the MSHA health system, based in Tennessee. The other MSHA health facilities are connected by an existing, 100MB WAN. MSHA is requesting **\$50,400** from the FCC's Rural Health Care Pilot Project to establish a wide area inter-state broadband network connection between the existing MSHA and NCH/DCH private WANs for the purpose of facilitating the high speed transfer of communications, clinical, financial, and image data supporting the delivery of care between facilities.

Need

Norton and Clintwood, VA, are served by Norton Community Hospital and Dickenson Community Hospital, respectively. These communities are located in Southwestern Virginia, in the Southern Appalachian Mountains, an area with a long history of geographic isolation and economic disadvantage. Providing adequate health care to the residents of these communities has proven to be a challenge to many caring and talented health professionals. The communities are simply not large enough to support the financial needs of the modern hospital. This is especially true with the increasing costs required to acquire and support the latest diagnostic and treatment equipment.

The health care needs of these communities are great. The residents of both Norton and Dickenson County have higher mortality rates than the rest of Virginia for a number of factors, including heart disease, pneumonia, diabetes and suicide.

Table 1: Age Adjusted Mortality Rates Per 100,000 for Norton, VA, 1998-2002

	Norton	VA
Heart Disease	346.1	218
Malignant Neoplasm	257.8	190
Pneumonia	38.4	22.7
Diabetes Mellitus	39.1	21.7
Chronic Liver Disease	22.4	7.7
Suicide	15.2	11.1
Septicemia	27.4	15.4

Table 2: Age Adjusted Mortality Rates Per 100,000 for Dickenson County, VA, 1998-2002

	Dickenson	VA
Heart Disease	267.4	218
Malignant Neoplasm	199.7	190
Pneumonia	38.4	22.7
Diabetes Mellitus	27.2	21.7
Chronic Liver Disease	15.7	7.7
Suicide	19.9	11.1
Septicemia	18.5	15.4

Both of these communities have an urgent need for better health care.

Rural Location

Located in Southwestern Virginia, Dickenson County and Norton are extremely rural and lacking in economic opportunity. Dickenson Community

Hospital is located in a census tract with a USARC primary code of 10, and a secondary of 10.6, indicating a rural area that has only a minor connection to a larger urban area, with few people commuting to work outside the community. Norton Community Hospital has a USARC primary code of 7 and a secondary code of 7.0, meaning that people commuting to work are traveling to a small town, rather than a large urban area.

Coal formed the basis of these community's economies for many years, cycling between boom and bust. The effect of the Clean Air Act on coal use and the exhaustion of the easy to reach coal beds have led to the closing of many mines. Since 1990, the percentage of Virginia's coal production taking place in Dickenson County has dropped from 14% to 11%. The overburden that was shifted so that the surface mines could reach the coal seams has left behind a landscape that differs dramatically from how it was prior to the 1930's. Transfer payments, such as pensions, disability and welfare payments have grown in importance to the community.

Multiply Disadvantaged

Southern Appalachia has long been an economically disadvantaged area. Dickenson County is classified as "Distressed" by the Appalachian Regional Commission (ARC). This classification is used for communities in Appalachia that have high rates of poverty and unemployment (150% of the US Average) and low per capita market income rates (67% or less of US average).

Table 3: Economic Status of Dickenson County, VA compared to US (from ARC)ional Data)

	Dickenson	US
Three-Year Average Unemployment Rate (2001-2003)	15.8%	5.5%
Three-Year Average Unemp.Rate, percent of US (2001-2003)	287.2%	100%
Per Capita Market Income (2002)	\$11,213	\$26,420
PCMI, Percent of US (2002)	42.4%	100%
Poverty Rate (2000)	21.3%	12.4%
Poverty Rate, Percent of US (2000)	172.1%	100%

Norton, and the surrounding county of Wise, is classified as "At-Risk" by the ARC, with high rates of poverty or unemployment (125% of the US Average) and

low per capita market income rates (67% or less of US average). Both of these communities are undergoing shifts in population, industry, and culture, as they enter the twenty-first century.

Table 4: Economic Status of Norton (and Wise Co.), VA compared to US (from ARC Regional Data)

	Norton	US
Three-Year Average Unemployment Rate (2001-2003)	5.6%	5.5%
Three-Year Average Unemp.Rate, percent of US (2001-2003)	102%	100%
Per Capita Market Income (2002)	\$13,565	\$26,420
PCMI, Percent of US (2002)	51.3%	100%
Poverty Rate (2000)	20.2%	12.4%
Poverty Rate, Percent of US (2000)	163.5%	100%

Educationally, the disparity between these counties and the rest of the nation is striking. Only 58.9% of the adult population of Dickenson County, and 62.9% of the population of Norton graduated from high school (2000) compared to the national average of 80.4%. In Dickenson County, only 6.7% of the adults in the community have a college degree, just over a quarter of the rate in the United States. In Norton, the numbers are slightly higher, at 11.1%, but that is still less than half the percentage of the United States, as a whole.

The population is also older than average with 15.3% being 65 years or older, compared with 12% for the U.S. as a whole. In part, this is driven by younger residents moving out of the county to obtain work. In recent years, however, older people have begun moving into the county. A growing “snowbird” population, retirees who move out of the county to a second home in another state or region during the winter months, has begun putting additional stress on the health care system. While this population shift is not as great as some of the seasonal changes in the frontier communities identified in a recent ORHP study, the need to provide treatment for a seasonal elderly segment of the population can put a strain on the existing health resources.

Table 3: Economic Indicators for Dickenson County and Norton, VA

	Dickenson	Norton	VA	US
Population with Medicaid	27.2%	29.8%	10.8%	
Percentage of Adults w/ HS Diploma (2000)	58.9%	62.9%	81.5%	80.4%
Percentage of Adults w/ HS Diploma, Percent of US (2000)	73.3%	78.2%	101.3%	100%
Percentage of Adults w/College Degree (2000)	6.7%	11.1%	29.5%	24.4%
Percentage of Adults w/College Degree, Percent of US (2000)	27.3%	45.6%	120.7%	100%

RESPONSE

Goals and Objectives

This project to connect the rural hospitals in Norton and Clintwood, Virginia, will focus on improving their ability to access resources to provide better and less expensive health care to the residents of their communities. Through the connections to the MSHA WAN, NCH and DCH will gain improved telecommunications and integrated E-mail services. It will also be the conduit through which MSHA will extend standardized clinical and financial applications to the clinician and team members rendering care in these rural hospitals. Ultimately, these rural hospitals will gain the ability to obtain, communicate, and pass clinical information with all of the other MSHA facilities. They will have access to larger volume services that should result in a reduction in operating costs, helping to keep the hospitals solvent and health care costs lower for their communities. Local calling through the network will enable them to increase their collaborative efforts with other regional health care providers and to reduce their costs for these calls.

These resources will also provide a framework for future expansion of the services that the hospitals can offer through the implementation of telemedicine projects with other hospitals on the network. One project that is being implemented is videoconferencing between hospitals for consultations, behavioral health therapy, and other uses.

Expected Annual Cost of the Network Connection and Future Support

The expected annual cost of maintaining the network connection between the Norton Community Hospital, the Dickenson Community Hospital and the MSHA network hub, located at the Johnson City Medical Center, in Johnson City, Tennessee, are expected to be approximately \$50,400 per year. This cost will include an estimated \$1400 in monthly charges for each facility from MountainNet and Embarq for 100MB Ethernet service and \$700 in monthly charges for each facility for a T1 telephone tie line. This combined cost of \$2100 per month for each facility, \$4200 for both, and \$50,400 per year will provide improved data and voice connectivity for the hospitals.

These expenses will become standard operating expenses of the hospitals after the grant period and will be paid for out of the revenue generated by the facilities as they provide improved health care for their communities.

For-Profit Partners

There are no for-profit partners taking part in the project for which funding is being requested.

Project Management Team

The project will be directed by Richard Eshbach, Assistant Vice President of MSHA. He will direct the activities of the Information Services department of MSHA as they work to integrate these two rural hospitals into the multi-state network. This process will take place using the established policies and procedures for IT projects. Particular personnel involved in the project will include:

- Judy Lawson – Director of Information Systems, NCH
- Bill McDaniel – IT Director of Engineering Technology, MSHA
- Matthew Grissinger –Network Analyst II (Logistics), MSHA
- David Grubb –Network Engineer (and Firewall services), MSHA

The project will follow the workplan outlined below:

- The MSHA IT department's Project Management Office and work order ticketing system is in place for overseeing and tracking projects. For this

project, a work order (ITR) will be generated once funding has been received.

- The ITR will be assigned to our IT Logistics team member who will engage the support of David Grubb, an MSHA IS Network Engineer, a Telecommunication Coordinator and all necessary vendor contacts to implement the proposed project.
- The network and firewall engineers will also be consulted to perform any appropriate network addressing, routing, and segmentation.

Previous Experience with Telemedicine Projects

The MSHA IT department has overseen the implementation of various telemedicine initiatives supporting the delivery of care at MSHA. These include the following:

- Rollout and implementation of the Radiology Picture Archiving Computer System (PACS) and associated broadband network at the Johnson County Community Hospital, a facility in rural Johnson County, TN.
- Rollout and implementation of a network-based mobile video conferencing platform in many of the MSHA hospitals to support the coordination efforts of the emergency response teams and to provide for increased educational and clinical outreach. A further program is in development to allow the use of videoconferencing for psychiatric consultations between Woodridge Hospital, in Johnson City (Washington County, TN) and Johnson County Community Hospital, in Mountain City (Johnson County, TN). Once underway, we expect this program to grow and be utilized by other partners in our efforts to provide medical care for rural communities in our region.

Initial Network Setup Costs

The initial expenses to set up the network will be borne by MSHA. The exact figures are awaiting the receipt of estimates by area Internet Service

Providers (ISPs). The amount is expected to exceed **\$9000**, from a total project budget of approximately **\$60,000**. These expenditures will be demonstrated as required by the standards for reporting the expenditure of federal grant funds.

Request for Funding

Mountain States Health Alliance, based in Johnson City, TN, is requesting **\$50,400** in funding in order to connect Norton Community Hospital (Norton, VA) and Dickenson Community Hospital (Clintwood, VA) to their Wide Area Network (WAN) to enhance the quality and level of care that they can improve the health of their communities.

Network Members

Proposed

- **Dickenson Community Hospital**
 - 312 Hospital Drive
P.O. Box 1440
Clintwood, Virginia 24228
 - (276) 926-0300
 - Census Tract: 510510990200
 - MSA Code: NA
 - USARC Code
 - Primary: 10
 - Secondary: 10.6
 - County-wide Health Professional Shortage Area
- **Norton Community Hospital**
 - 100 Fifteenth Street NW
Norton, VA 24273
 - (276) 679-9600
 - Census Tract: 51720990100
 - MSA Code: NA
 - USARC Code
 - Primary: 7
 - Secondary: 7.0

Existing

- **Johnson City Medical Center**
 - 400 N. State of Franklin Road
Johnson City, TN 37604-6094
 - Phone: (423) 431-6111
 - Census Tract: 47179060300
 - MSA Code:27740
 - USARC Code
 - Primary: 1
 - Secondary:1.0
- **Indian Path Medical Center**
 - 2000 Brookside Drive
Kingsport, Tennessee 37660
 - Phone: (423) 857-7000
 - Census Tract: 47163042100
 - MSA Code: 28700
 - USARC Code
 - Primary: 1
 - Secondary: 1.0
- **Indian Path Pavilion**
 - 2300 Pavilion Drive
Kingsport, Tennessee 37660
 - Phone: (423) 857-5500
 - Census Tract: 47163042100
 - MSA Code: 28700
 - USARC Code
 - Primary: 1
 - Secondary: 1.0
- **The Children's Hospital at Johnson City Medical Center**
 - 400 North State of Franklin Road
Johnson City, TN 37604-6094
 - Phone: (423) 431-6111
 - Census Tract: 47179060300
 - MSA Code:27740
 - USARC Code
 - Primary: 1
 - Secondary:1.0

- **Johnson City Specialty Hospital**
 - 203 E. Watauga Avenue
Johnson City, TN 37601
 - Phone: (423) 926-1111
 - Census Tract: 47179060100
 - MSA Code: 27740
 - USARC Code
 - Primary: 1
 - Secondary: 1.0
- **Johnson County Community Hospital**
 - 1901 South Shady Street
Mountain City, TN 37683
 - Phone: (423) 727-1100
 - Census Tract: 47091956300
 - MSA Code: NA
 - USARC Code
 - Primary: 7
 - Secondary: 7.4
 - County-wide Health Professional Shortage Area
- **North Side Hospital**
 - 401 Princeton Road
Johnson City, TN 37601
 - Phone: (423) 854-5600
 - Census Tract: 47179061300
 - MSA Code: 27740
 - USARC Code
 - Primary: 1
 - Secondary: 1.0
- **James H. and Cecile C. Quillen Rehabilitation Hospital**
 - 2511 Wesley St.
Johnson City, TN 37601
 - Phone: (423) 952-1700
 - Census Tract: 47179061300
 - MSA Code: 27740
 - USARC Code
 - Primary: 1
 - Secondary: 1.0

- **Smyth County Community Hospital**
 - 565 Radio Hill Road
Marion, Virginia 24354
 - Phone: (276) 782-1234
 - Census Tract: 510173990300
 - MSA Code: NA
 - USARC Code
 - Primary: 7
 - Secondary: 7.0
- **Sycamore Shoals Hospital**
 - 1501 West Elk Avenue
Elizabethton, TN 37643
 - Phone: (423) 542-1300
 - Census Tract: 47019070200
 - MSA Code: 27740
 - USARC Code
 - Primary: 1
 - Secondary: 1.0
- **Woodridge Hospital**
 - 403 State of Franklin Rd.
Johnson City TN 37604
 - Phone: (423) 928-7111 or 1(800) 366-1132
 - Census Tract: 47179060300
 - MSA Code: 27740
 - USARC Code
 - Primary: 1
 - Secondary: 1.0